Volunteer Lake Assessment Program Individual Lake Reports

JENNESS POND, NORTHWOOD, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	1,837	**Max. Depth (m):**	8.5	**Flushing Rate (yr^{1})**	1.6
Surface Area (Ac.):	232	**Mean Depth (m):**	2.7	**P Retention Coef:**	0.68
Shore Length (m):	6,100	**Volume (m^{3}):**	2,535,500	**Elevation (ft):**	657

TROPHIC CLASSIFICATION

Year	Trophic class
1991	MESOTROPHIC
2009	MESOTROPHIC

KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

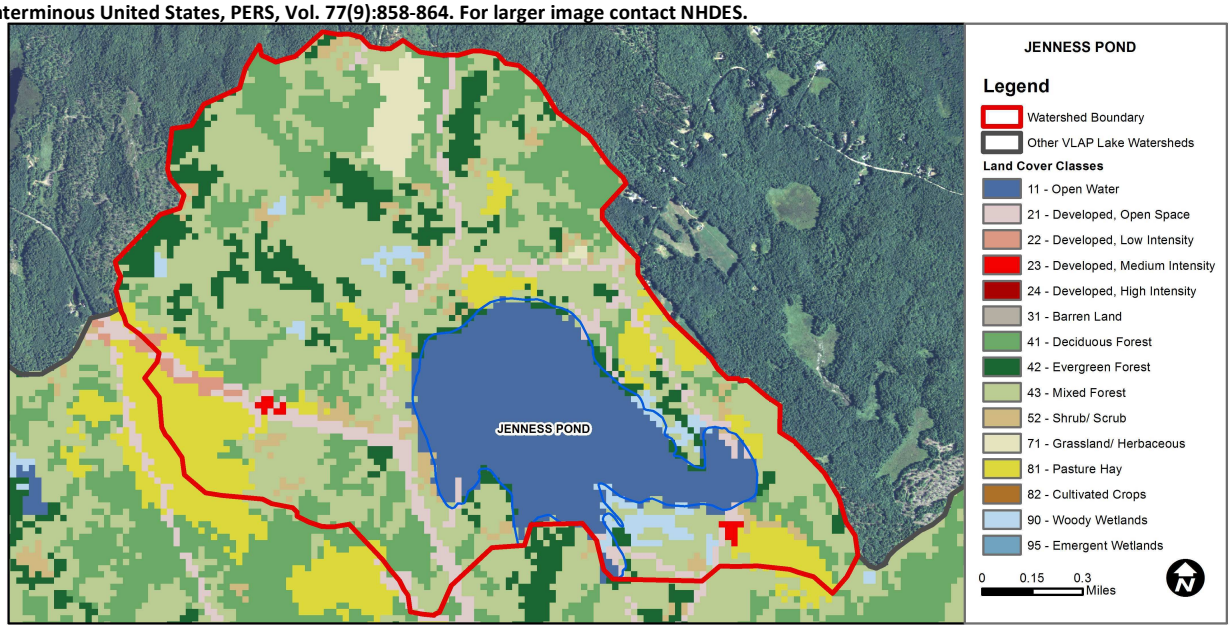
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Cautionary	The calculated median is fewer than 5 samples but > indicator and the chlorophyll a indicator is okay. More data needed.
	pH	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	Oxygen, Dissolved	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Dissolved oxygen satura	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Chlorophyll-a	Cautionary	The calculated median is fewer than 5 samples but > indicator. More data needed.
Primary Contact Recreation	Escherichia coli	Bad	There are >=1 exceedance(s) of the geometric mean and/or >=2 single sample criterion exceedances. One or more exceedance is >2X criteria.
	Cyanobacteria hepatoto	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of indicator.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

JENNESS POND BEACH	Escherichia coli	No Data	No data for this parameter.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	17.4	Barren Land	0	Grassland/Herbaceous	1.99
Developed-Open Space	5.42	Deciduous Forest	16.78	Pasture Hay	8.14
Developed-Low Intensity	0.46	Evergreen Forest	8.74	Cultivated Crops	0
Developed-Medium Intensity	0.27	Mixed Forest	35.65	Woody Wetlands	2.06
Developed-High Intensity	0	Shrub-Scrub	3.04	Emergent Wetlands	0

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2015 Data Summary

Recommended Actions: Algal growth in the pond has remained at a higher level since 2009. This typically indicates an increase in nutrient availability in the pond. Phosphorus is typically the nutrient that limits algal growth in NH lakes, however nitrogen could also play a role in algal growth. Add nitrogen monitoring at the deep spot to assess the ratios of nitrogen and phosphorus to better understand which nutrient may be driving algal growth in the pond. The state has also experienced an increase in the frequency and intensity of storm event and associated stormwater runoff could transport excess nutrients to the pond. Encourage watershed residents to minimize stormwater runoff from their properties and leave vegetated buffers along the shoreline. DES' "NH Homeowner's Guide to Stormwater Management" is a good resource. Contact the VLAP Coordinator if interested in nitrogen sampling and keep up the great work!

Observations (*Refer to Table 1 and Historical Deep Spot Data Graphics)*

- **Chlorophyll-a:** Chlorophyll levels were very low in June, increased to moderate levels in July, and then increased to slightly elevated levels in September. The 2015 average chlorophyll level increased slightly from 2014 and was slightly less than the state median. Historical trend analysis indicates highly variable chlorophyll levels since monitoring began.
- **Conductivity/Chloride:** Deep spot and Outlet conductivity and chloride remained slightly greater than the state medians but not above a level of concern. Historical trend analysis indicates relatively stable epilimnetic (upper water layer) conductivity since monitoring began. Coletti Brook conductivity and chloride was very low. Bapple Spring Brook conductivity and chloride was elevated and much greater than the state medians. Morse Spring Brook conductivity and chloride levels were slightly elevated.
- **Total Phosphorus:** Epilimnetic phosphorus decreased slightly from June through September and was less than the state median. Historical trend analysis indicates relatively stable epilimnetic phosphorus with moderate variability between years. Hypolimnetic phosphorus was within an average range and decreased slightly from June through September. Deep spot phosphorus levels decreased as algal growth increased in the pond. Bapple Spring Brook and Outlet phosphorus levels were low. Coletti Brook phosphorus levels were slightly elevated and it was noted the sample contained a small amount of sediment and was colored. Morse Spring Brook phosphorus was within an average range for that station.
- **Transparency:** Transparency (NVS) decreased (worsened) as the summer progressed and algal growth increased. Average NVS transparency decreased from 2014 and was the lowest (worst) average transparency since monitoring began. Historical trend analysis indicates significantly decreasing (worsening) transparency since monitoring began. Transparency measured with the viewscope (VS) was generally much better than NVS transparency and likely a better representation of conditions.
- **Turbidity:** Epilimnetic turbidity was slightly elevated in June likely due to pollen and also elevated in September likely due to algal growth. Hypolimnetic turbidity was elevated on each sampling event. Bapple Spring and Morse Spring Brooks turbidities were within average ranges for those stations. Coletti Brook turbidity was slightly elevated and a small amount of sediment and color was noted in the sample. Outlet turbidity was slightly above average in June and July but not within an elevated range.
- **pH:** Deep spot and tributary pH levels were slightly acidic and less than the desirable range 6.5-8.0 units. Historical trend analysis indicates highly variable epilimnetic pH since monitoring began.

Table 1. 2015 Average Water Quality Data for JENNESS POND

Station Name	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	Total P ug/l	Trans. m		Turb. ntu	pH
						NVS	VS		
Epilimnion	3.6	4.13	14	79.2	8	3.18	4.10	1.36	6.28
Hypolimnion				79.7	12			2.06	5.78
Bapple Spring Brook			88	329.6	8			0.29	5.47
Coletti Brook			3	24.2	30			1.66	6.12
Morse Spring Brook			26	126.9	15			0.94	6.17
Outlet				78.9	9			1.05	6.06

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: > 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: between 6.5-8.0 (unless naturally occurring)

Historical Water Quality Trend Analysis

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	Stable	Trend not significant; data moderately variable.	Chlorophyll-a	Stable	Trend not significant; data highly variable.
pH (epilimnion)	Stable	Trend not significant; data highly variable.	Transparency	Worsening	Data significantly decreasing.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.